



Short Communication

Injection and non-injection drug use and infectious disease in Baltimore City: Differences by race



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HIGHLIGHTS

- Race differences emerged between injection and non-injection drug-using subgroups.
- Polydrug injectors accounted for three quarters of Hepatitis C diagnoses in Whites.
- The smoking crack/nasal heroin subgroup contained over half of the HIV + diagnoses.
- The smoking crack/nasal heroin subgroup was predominantly Black.
- Blacks had a higher prevalence of coinfection than Whites.

ARTICLE INFO

Available online 5 May 2014

Keywords:

Heroin
Cocaine
Non-injection drug use
Injection drug use
HCV
HIV
Coinfection

ABSTRACT

Purpose: The current study examines differences in the prevalence of biologically-confirmed hepatitis C virus (HCV), HIV, and coinfection between Black and White adult cocaine/heroin users across three drug use subgroups identified in previous research (Harrell et al., 2012): non-injection smoking crack/nasal heroin users, heroin injectors, and polydrug injectors.

Results: 59% of the 482 participants in the study were male. Significant race differences emerged between drug use subgroup memberships. Non-injection smoking crack/nasal heroin users were predominantly Black (75%), while heroin injectors and polydrug injectors were predominantly White (69% and 72%, respectively). Polydrug injectors accounted for nearly three quarters of the HCV positive diagnoses in Whites. Though HIV disease status, stratified by race, did not differ significantly between drug use subgroups, the non-injection smoking crack/nasal heroin subgroup contained over half of the HIV positive diagnoses in the sample and was predominantly Black. Despite much lower rates of injection, Blacks (8%) had a higher prevalence of coinfection than Whites (3%; $\chi^2(2) = 6.18, p = .015$).

Conclusions: The current findings are consistent with trends in the recent HIV transmission statistics where sexual activity has overtaken injection drug use as a HIV risk factor. The current findings also provide further support to the notion of injection drug use as an exceedingly high-risk behavior for HCV and coinfection, specifically those who are polysubstance injectors.

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1. Introduction

HIV and Hepatitis C virus (HCV) continue to be critical public health priorities in the US. Since the 1990s HIV incidence has remained stable with approximately 50,000 new HIV cases detected annually while HCV has remained the most common chronic blood borne infection (CDC, 2011). These infections also commonly co-occur given the central

role of parenteral transmission for both infections, with approximately 30% of individuals living with HIV also are infected with HCV (Sherman, Rouster, Chung, & Rajcic, 2002), while there is evidence that 90% of some HIV-infected drug-using groups are co-infected (Bessone, 2009). There is a race disparity in prevalence of HIV, HCV, and co-infection with both HIV and HCV. The HIV/AIDS case rate among Black men (104 per 100,000) is disproportionately high compared to that of White men (16 per 100,000), while Blacks are twice as likely to be infected with HCV (Armstrong et al., 2006). There is a need to identify the unique factors that drive infections in each race group to reduce transmission overall and help address the race disparity in infection.

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Injection drug use (IDU) is the primary route of transmission of HCV transmission and remains one of the leading causes of HIV transmission (CDC, 2012). Non-injection drug use (NIDU) is also a well-established determinant of high-risk sexual behavior and HIV infection (Celentano, Latimore, & Mehta, 2008), while there also is evidence that those who currently use NIDU also face high risk of HCV infection given prior injection histories (Bessone, 2009; Strader, 2005). Previous research has indicated that different subgroups of drug users that exhibit different patterns of drug use face differential risk of drug-related infectious disease transmission (Agrawal, Lynskey, Madden, Buchholz, & Heath, 2006; Carlson, Wang, Falck, & Siegal, 2005; Monga et al., 2007). Improved understanding of the role of different patterns of drug use – including the importance of injection versus non-injection drug use – in the infectious disease risk of Blacks versus Whites is needed to best tailor population-specific interventions to address race differences in dynamics of infectious disease epidemics.

Baltimore is as an epicenter of IDU in the US, ranked second in estimated IDUs per capita (Friedman et al., 2004) and hence faces high rates of both HIV and HCV. Using the NEURO-HIV Epidemiologic Study, a study of NIDUs and IDUs in Baltimore, Harrell, Mancha, Petras, Trenz, and Latimer (2012) examined patterns of drug use in the sample and identified three distinct drug use subgroups of drug users: crack/nasal heroin users (who primarily were NIDU), heroin injectors, and polydrug injectors (primarily injected heroin, cocaine and the combination of heroin and cocaine; “speedball”). Examination of disease risk between drug use subgroups indicated that the crack/nasal heroin users were less likely to be HCV-infected than the injecting groups, while levels of HIV were comparable across the groups. However, these results are difficult to interpret without taking into account the role of race. In particular, crack/nasal-heroin users were almost 7 times more likely to identify as Black (Harrell et al., 2012). Given the well-known racial disparities in HIV (Sutton et al., 2009), it is imperative to clarify this relationship.

The purpose of the current study is to build from the work of Harrell et al. (2012) to examine race differences in patterns of drug use and in the relationship between drug use and HIV and HCV infections in the NEURO-HIV Epidemiologic Study sample. Specifically, we compared White (N = 244) and Black (N = 238) drug users in Baltimore on patterns of drug use and evaluated whether there were race differences in associations between drug use pattern and infection with HIV, HCV, and both HIV and HCV.

2. Method

2.1. Participants

The current study utilized baseline data from the NEURO-HIV Epidemiologic Study, a NIDA-funded longitudinal study conducted to identify neuropsychological and social-behavioral risk factors for blood borne infectious diseases among injection and non-injection drug users in Baltimore, Maryland. Only individuals with biologically confirmed results for HIV and HCV were included in this study. Participants in the current study were a subsample of 482 IDU and NIDU from the parent study who were chosen based on complete data for HIV and HCV, 18–50 years of age (M = 32.63; S.D. = 7.01), 51% Whites and 49% Black. Of the full sample, 42 (8.7%) were HIV+, 248 (51.5%) were HCV+, and 26 (5.4%) were coinfecting with both HIV and HCV. A total of nine males reported having sex with another man in their lifetime (six White men and three Black men). Details regarding recruitment and participant characteristics of the parent study have been previously presented (Harrell et al., 2012). The current study was approved by the University of Florida Institutional Review Board and has received annual renewals.

2.2. Drug group status

Participants, who used cocaine and/or heroin in, but not via injection, were classified as “Crack/Nasal-Heroin” users. This subgroup also used cigarettes and drank alcohol in the past month with more than 50% probability. Crack/Nasal Heroin users had 112 (53%) men, with 36 (17%) reported being homeless in the last six months and 104 (49%) reported having a regular income in the past six months. This subgroup had a mean age of 34.48 (SD = 6.29). Individuals who primarily injected heroin were classified as “Heroin Injectors”. The Heroin Injectors had a mean age of 31.74 (SD = 7.38). These participants also used cigarettes. However, no other substance yielded above a 25% probability of use in the past month. Heroin Injectors subgroup was comprised of 62 (59%) men, with 22 (21%) of the subgroup reporting being homeless in the past six months, and 61 (58%) of these participants reported having regular income in the past six months. Those who injected more than one substance were deemed “Polydrug Injectors”. This subgroup primarily injected heroin, cocaine and speedball. They also reported smoking cigarettes with more than 90% probability. Polydrug injectors included 110 (67%) men, with 44 (27%) of this subgroup reporting being homeless in the past six months, and 91 (55%) reporting not having regular income in the past six months.

2.3. Race & disease status

Participants self-reported demographic data including race, gender, and age as part of the HIV Risk Behavior Assessment interview (Dowling-Guyer et al., 1994). HIV and HCV status was determined from serum blood samples collected from participants upon entry into the study.

2.4. Statistical analysis

Descriptive statistics were used to determine HCV and HIV prevalence by race within each drug use subgroup. Chi square analyses were employed to examine differences in HCV and HIV based on race and drug use subgroup.

3. Results

3.1. Race differences in patterns of drug use

As seen in Table 1, there were significant race differences in patterns of drug use ($X^2(2) = 97.84, p = .001$). Blacks were more likely to be crack/nasal heroin users (66%) than heroin injectors (14%) and polydrug injectors (20%). However, whites were more likely to be polydrug and heroin injectors (48% and 30%, respectively) than crack/nasal heroin users (22%).

Table 1
Differences between drug use groups by race.

N = 482	White (244)	Black (238)	p-Value (X^2 test)
	% (n)	% (n)	
Drug use group			
Crack/nasal	22% (53)	66% (158)	
Heroin			
Heroin injectors	30% (73)	14% (33)	.001
Polydrug injectors	48% (118)	20% (47)	
Disease status			
HIV + (42)	3% (7)	15% (35)	.001
HCV + (n = 248)	63% (154)	40% (94)	.001
HIV + & HCV + (n = 26)	3% (7)	8% (19)	.015

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